DOCUMENT RESUME

ED 365 535 SE 053 967

TITLE	Report to the Governor's Mathematics and Sciences Advisory Board Presented to Governor Carroll A. Campbell, Jr.
INSTITUTION	South Carolina Governor's Mathematics and Sciences Advisory Board, Columbia.; South Carolina State Dept. of Education, Columbia.
PUB DATE	Jul 92
NOTE	29p.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Educational Assessment; Educational Change; Elementary Secondary Education; *Mathematics Curriculum; *Mathematics Education; *Needs Assessment; Professional Development; *Science Curriculum; *Science Education; *State Programs; Student Evaluation
IDENTIFIERS	*South Carolina

ABSTRACT

This report presents the State of South Carolina's vision and plan for coordinating special programs in mathematics and science education. The report is divided into two sections. The first section identifies four critical needs and lists systemic responses to those needs. The second section presents the criteria recommended for the State Plan for Mathematics and Science Education Improvement and all major proposals and activities that fall under this plan. The critical needs of the state and proposed responses are to establish: (1) Statewide agreement on what every student should know in mathematics and science and an assessment system that supports those standards; (2) A continuous improvement approach regarding South Carolina's ability to meet the learning needs under #1; (3) An infrastructure for the equitable delivery of resources and services to meet the state's learning needs; and (4) A structure and responsibility for pressing the plan forward. Criteria for evaluating and redesigning mathematics and science education relate to: (1) Student preparation, development, and support; (2) Curriculum content, instruction, and assessment; (3) Teaching preparation, development, support, restructuring, and policy development; (4) Administrative preparation, development, coordination, restructuring, and policy development; (5) Resource equipment, facilities, materials, community, and people; and (6) Communication with the public, between agencies, and in progress reports. Appendices contain a listing and map of the proposed Resource and Professional Development Regions. (MAZ)

ABOUT THIS REPORT

The work of the Governor's Mathematics and Sciences Advisory Board (MSAB) began December 19, 1991, following an Executive Order issued by Governor Carroll A. Campbell requesting a vision and a plan for coordinating special programs in mathematics and science education in South Carolina. The authority of the MSAB extends from the offices of the Governor of South Carolina, the State Superintendent of Education and the Commissioner of Higher Education. The success of the MSAB depends in large part on the subsequent actions of these state offices in response to this report.

The MSAB met seven times to develop the elements of this plan. Early in the deliberations, the MSAB developed a set of criteria for evaluating the development of its own plan. The criteria also are intended for use in evaluating other proposals and activities in science and mathematics education for South Carolina. Developing these criteria helped to create a meaningful and challenging vision and to identify the most important elements of the state mathematics and science education plan.

The MSAB considered South Carolina's most pressing needs and possible responses to those needs. The needs and responses were evaluated against the criteria established in creating the vision and identifying the elements of the State Plan. Projected demographic data for the years 2000 and 2010 were considered as part of the process. The data assisted the group in the refinement of access and equity issues and in framing the priorities for our future efforts.

This report is divided into two sections. The first section identifies four critical needs and lists systemic responses to these needs. The second section presents the criteria recommended for the State Plan for Mathematics and Science Education Improvement and all major proposals and activities that fall under this plan.

The MSAB would like to thank the following for funding support:

- U.S. Department of Energy for funding through the South Carolina Universities Research and Education Foundation (SCUREF)

- U.S. Department of Education for a Dwight D. Eisenhower Mathematics and Sciences Education Act (DDEMSEA) grant awarded via the Commission on Higher Education to the USC Science Center.

The MSAB also thanks the Governor, Carroll A. Campbell, Jr., the State Superintendent of Education, Barbara S. Nielsen, Ed.D., and the Commissioner of Higher Education, Fred Sheheen, for their invaluable assistance.

CHAIRMAN'S INTRODUCTION

With the submission of this report, the first phase of the work of the Governor's Mathematics and Sciences Advisory Board (MSAB) will be complete. It is important to understand that this work represents only one part, albeit a critical part, of the detail, design and implementation of a statewide strategic plan to alter, rapidly and systematically, the course of mathematics and science education in South Carolina. Our focus and commitments are directed by the National Education Goal #4: **to be first in the world in science and math achievement.**

The MSAB first developed criteria for evaluating the State Plan. To avoid a system which creates a "cookie cutter" mentality, we wanted to provide a tool by which developing programs could be evaluated or endorsed as consistent with the Plan. We then developed a list of critical needs that addressed the basic elements of the Plan. Finally, we developed a set of "fast track" responses which would immediately address the most critical needs.

The MSAB intends for this outline to evolve and expand, encompassing the needs and inputs of all stakeholders and constituencies in the coming year. We will expand our membership to more fully recognize the key roles of the private sector, public school representatives and governmental interests. We will develop communication mechanisms to insure that critical elements of the developing state plan are distributed and communicated to education service providers and the general public.

Lastly, we will work to build on the principles and criteria developed for this initial report with a strong sense of urgency, a bias for action and a commitment to making South Carolina a recognized leader in mathematics and science education.

Timothy J. Walgren
Chairman, Mathematics and Sciences Advisory Board

CONTENTS

The heart of the Plan is the vision. It recommends to the people of South Carolina:

OUR VISION

We, the people of South Carolina, have a dream to develop the very best creative and critical thinkers in the world, and to that end:

. . . Every person will value mathematics and science as an integral part of his or her life.

. . . Every student will learn the core building blocks of mathematics and science as ways of knowing, appreciating and reshaping the world.

. . . Every student will have the opportunity to excel in mathematics and science as creators and users of knowledge.

. . . Failure to achieve mathematics and science literacy will cease to be an acceptable alternative for any student.

. . . The state of South Carolina will enable all teachers to deliver stimulating, meaningful, and enjoyable experiences in mathematics and science.

STRATEGIC PLAN SUMMARY

The Mathematics and Science Plan for South Carolina is focused on the following:

1. Meeting the long term objective of National Education Goal #4: "By the Year 2000, American students will be first in the world in science and math achievement."

2. An improved means to provide for equity in access to the resources and learning experiences in mathematics and science.

3. Identifying and addressing a basic list of critical needs and strategic responses to those needs.

4. Creating a new organization dynamic to address, systemically and collaboratively, rapid and statewide distribution of information about the Plan and recruitment of broad-based constituencies in the Plan's implementation.

The Strategic Plan includes:

1. Rapid and comprehensive distribution of the revised curriculums in mathematics and science building on the work of the South Carolina Curriculum Congress and the South Carolina Curriculum Frameworks.

2. The development of a system of teacher and administrative pre-service and in-service training to support rapid implementation of developed curriculums, standards and assessment vehicles.

3. Establishment of a statewide system of resource centers to support the above plan components and to expand the scope of constituencies to include leaders in education, business, government, and industry.

4. Establishment of a process to press the Plan forward, including the use of the South Carolina Council on Educational Collaboration as the primary oversight body and the continuation of the role of the MSAB in an advisory role.

5. The development of a public and professional awareness program as a vehicle to keep and amplify a real sense of urgency toward timely and systemic change in mathematics and science education in South Carolina.

SECTION I:
CRITICAL NEEDS OF THE STATE AND PROPOSED RESPONSES

The MSAB holds two fundamental beliefs about systemic change and continuous improvement in mathematics and science education. If the quality of mathematics and science education in South Carolina is to improve on a statewide scale in a substantial way, then:

1. All the elements of the mathematics and science education plan must be working in harmony toward the same vision; and

2. Each element of the State Plan must be held against high standards and progress must be assessed regularly against these standards.

The MSAB has identified four basic critical needs. The critical needs include methods for improving curriculum and teacher training, and distribution of resources. The final critical need focuses on the anticipated continuing role of the MSAB in the early stages of plan implementation and beyond. The State Plan at this point is defined by the responses recommended for each need. Initially, the responses include some important initiatives already underway and the development of a limited infrastructure to respond quickly to immediate needs. More action and greater detail is expected in response to some of the other needs. The Plan is intended to grow and evolve over a ten-year time frame and is expected to expand or contract in concert with needs. The Plan anticipates integration and implementation with current and future initiatives, both public and private.

The Education System must support risk taking and entrepreneurship in response to the vision. Efforts to harmonize the education system need not cripple those who see beyond current standards, frameworks, paradigms, or plans. A healthy system will always invest in experimentation in anticipation that revolutionary ideas will germinate from time-to-time into productive actions and grow into exciting new solutions.

Critical Need #1: **Establish statewide agreement on what every student should know in mathematics and science and an assessment system that supports those standards.**

Response: Educational programs in mathematics and science must be a component of the overall educational programs in the State of South Carolina. The MSAB recommends that the student learning and assessment programs recommended in the South Carolina Curriculum Frameworks become the basis for this plan. In particular, the present plan includes the following:

A. Develop state curriculum frameworks in mathematics and science and update these on a regular cycle.

B. Support the present efforts of the South Carolina Curriculum Congress by generating a state level conversation regarding what every student should know and be able to do.

C. Redesign the state student assessment system.
   1. Set standards in the mathematics and science curriculum frameworks.
   2. Set clear guidelines about the purpose and use of different assessment results.
      a. Make clear distinctions between assessments for instructional purposes and assessments for accountability purposes.
      b. Carefully examine the current incentives attached to certain types of assessments.
      c. Create a system to ensure that assessment results are used effectively and for their intended purposes only.

D. Provide ongoing support for research and development in classrooms, centers, and institutions of higher education to establish, on a constant basis, the future direction of mathematics and science education improvement.

Critical Need #2: **Establish a continuous improvement approach regarding South Carolina's ability to meet the learning needs established under Critical Need #1.**

Response: The teacher and administrator preparation and professional development programs should be established within the context of priorities that are based upon the most critical needs. In particular, the present plan includes the following:

A. Set priorities for action through continuous needs assessment.
   1. Annually update the critical needs identified in the State Plan.
   2. Establish priorities for action based on those needs.
   3. Designate lead agencies to accomplish actions.

B. Build a systemic professional development system for teachers and administrators.

   1. Examine the quality of teacher preparation programs against well-established standards and initiate changes more consistent with those standards.
      a. Establish and maintain consistency with national mathematics and science standards for teacher preparation (i.e., National Council of Teachers of Mathematics, National Science Teachers Association).
      b. Establish and maintain consistency with the state curriculum frameworks.
      c. Build consensus among colleges across the state about expectations for teacher preparation programs and the most important actions, statewide and institutionally, required to meet those expectations.

   2. Develop a comprehensive professional growth system.

a. Assure continuity with teacher and administrator preparation experiences.
b. Promote fundamental principles that preparation experiences be continuous, developmental, and career-long.
c. Begin professional careers with professional development schools or some other "residency" program with experienced teachers and administrators.
d. Coordinate professional development and quality assurance at both state and local levels.
e. Create a mechanism for developing teacher leadership in mathematics and science.

3. Link licensing and certification to the total professional development system.
   a. Align requirements with objectives and expected outcomes of teacher and administrator professional development programs, allowing flexibility for experimentation and change.
   b. Align requirements with national mathematics and science standards for teacher certification.
   c. Align expectations with the state curriculum frameworks.
   d. Build the state licensing and certification processes into the professional development system.

Critical Need #3: **Establish an infrastructure for the equitable delivery of resources and services to meet the State's learning needs.**

Response: Needed materials and services must be delivered to students and teachers in a quick and convenient manner. To accomplish this, a program supporting development centers and telecommunications should be initiated. In particular, the present plan includes the following:

A. Create a set of mathematics and science resource and professional development centers for the purpose of distributing resources, materials, and assistance to all areas of South Carolina.
   1. Designate most or all of the following activities as the core functions for each of the centers:
      a. Provide high quality professional development experiences for teachers, administrators, and school board members.
      b. Provide leadership for mathematics and science education reform in each region, *and in each school,* by creating more leadership opportunities for teachers, administrators, and school board members.
      c. Lend mathematics and science hardware to schools.
      d. Distribute resources which are otherwise in short supply.

e. Serve as a repository for other material resources and model curriculum units where school districts will preview new materials and educators will review the latest research.
f. Build regional alliances and broker products and services to schools and communities.
g. Examine and develop research on teaching and learning, program effectiveness, and improvement of teacher preparation and professional development programs in each region.
h. Facilitate community and regional communication about science and mathematics education reform.
i. Facilitate linkages between teacher and administrator preparation and professional development programs.
j. Conduct initial and ongoing needs assessment for the region.
k. Meet other local needs as identified.

2. Determine the location of each center:
   a. Recommend regions according to the following two criteria:
      (1) within one hour's drive for all teachers; and
      (2) number of students is comparable across regions.
   b. Propose prospective sites that:
      (1) represent the best available facilities in a central location within the service delivery area;
      (2) include an Educational Television (ETV) downlink; and
      (3) are located at district facilities, informal science centers, public or private technical colleges, universities, or private facilities.
      (4) Use existing centers and consortia, where possible, as the sites for centers.

3. Follow two fundamental principles regarding budgets for the Regional Centers:
   a. Allocate maximum dollars to programming and direct services to teachers and schools.
   b. Show administrative costs in detail in all proposals and budgets.

4. Establish the fiscal oversight and governance of the Regional Centers:
   a. The MSAB, under direction of the South Carolina Council on Educational Collaboration and its sponsors, the South Carolina State Department of Education and the Commission on Higher Education, should provide the program oversight for the Centers.
   b. The South Carolina Council on Educational Collaboration should designate a state fiscal agent.
   c. The centers should be collaborative:
      (1) Every higher education institution and every school district superintendent within the service delivery area should be invited to serve on an advisory committee for the regional center.

(2) Every center should balance the responsibility for leadership between pre-college and college personnel. The leadership team should include expertise in both mathematics and science education and should include "master" teachers, who should be full-time but non-permanent and rotating (e.g., on-leave from their school districts for a set time) employees.

d. The MSAB should set the terms of agreement for each center with each regional advisory committee based on the standards, criteria and core elements established in the State Plan.

e. The MSAB should be responsible for the ongoing quality assurance of each center.

B. Enhance telecommunications.

1. Facilitate greater use of South Carolina's distance learning network by integrating South Carolina Educational Television and Instructional Television with elements of the State Plan. Establish material support for these networks through one or more of the major grant proposals for science and mathematics education reform.

2. Integrate state computer linkages by establishing a lead network to carry ideas and information about state systemic initiatives and mathematics and science education reform. Provide support for the communicative network and user training through one or more of the major grant proposals for science and mathematics education reform.

C. Promote creative extra-curricular, after-school, or summer programs that stimulate interest in mathematics and science; support enhancement and integration of informal mathematics and science education through collaboration with civic and community groups, and the use of facilities offered by recreation and parks departments, marine laboratories, museums, etc.

Critical Need #4: **Establish a structure and responsibility for pressing the Plan forward.**

Response: The strategic plan is expected to evolve over time. The State must ensure the continuity and efficiency of the Plan's development, foster local and statewide partnerships between business and education, and communicate the evolving critical needs. In particular, the present plan includes the following:

A. Design programs that assure full integration of all business-education partnerships, local and statewide, and all public and private components of the Plan.

1. Include business and industry partners in all local efforts to reform the

mathematics and science education delivery system through active participation in the design, implementation, and support of new instructional programs. [The Regional Centers provide one structure to foster and integrate local business-education partnerships.]

2. Include business partners in all statewide efforts to reform the mathematics and science education delivery system through active participation in the design, implementation, and support of systemic initiatives to improve mathematics and science education. [The Governor's MSAB provides one possible structure for integrating business participation in the process of state decision making.]

3. Support the participation of the state's education and business partners in every regional, national, and international initiative designed to assist local and state efforts to reform science and mathematics education.

B. Establish a public and professional awareness program.
   1. Involve the State's educational constituents.
   2. Involve the public.
   3. Involve the State legislature and other decision makers.
   4. Operate within the context of the national education programs

C. Extend the Mathematics and Sciences Advisory Board (MSAB) term for one more year.
   1. Limit the MSAB to no more than 19 members.
   2. Expand composition to include more teachers and business/industry representatives.
   3. Fund the MSAB through a DDEMSEA proposal.
   4. The MSAB will:
      a. Assign roles and responsibilities for the activities and initiatives directed by the Plan.
      b. Monitor initial implementation of the Plan, especially elements established under SCUREF and State Systemic Initiative (SSI) proposals.
      c. Establish suggested guidelines for sponsors of state level science and mathematics education proposals in seeking the endorsements of other agencies and a process for MSAB review and comment of proposals submitted for its endorsement.
      d. Serve as state advocate for a new vision of mathematics and science education and champion of bold approaches that are consistent with the State Plan.

D. Project the role of the MSAB for life of Education Goal #4, that "By the Year 2000, American students will be first in the world in science and math achievement."
   1. Be responsible for pressing the Plan into action at every turn and in every way.

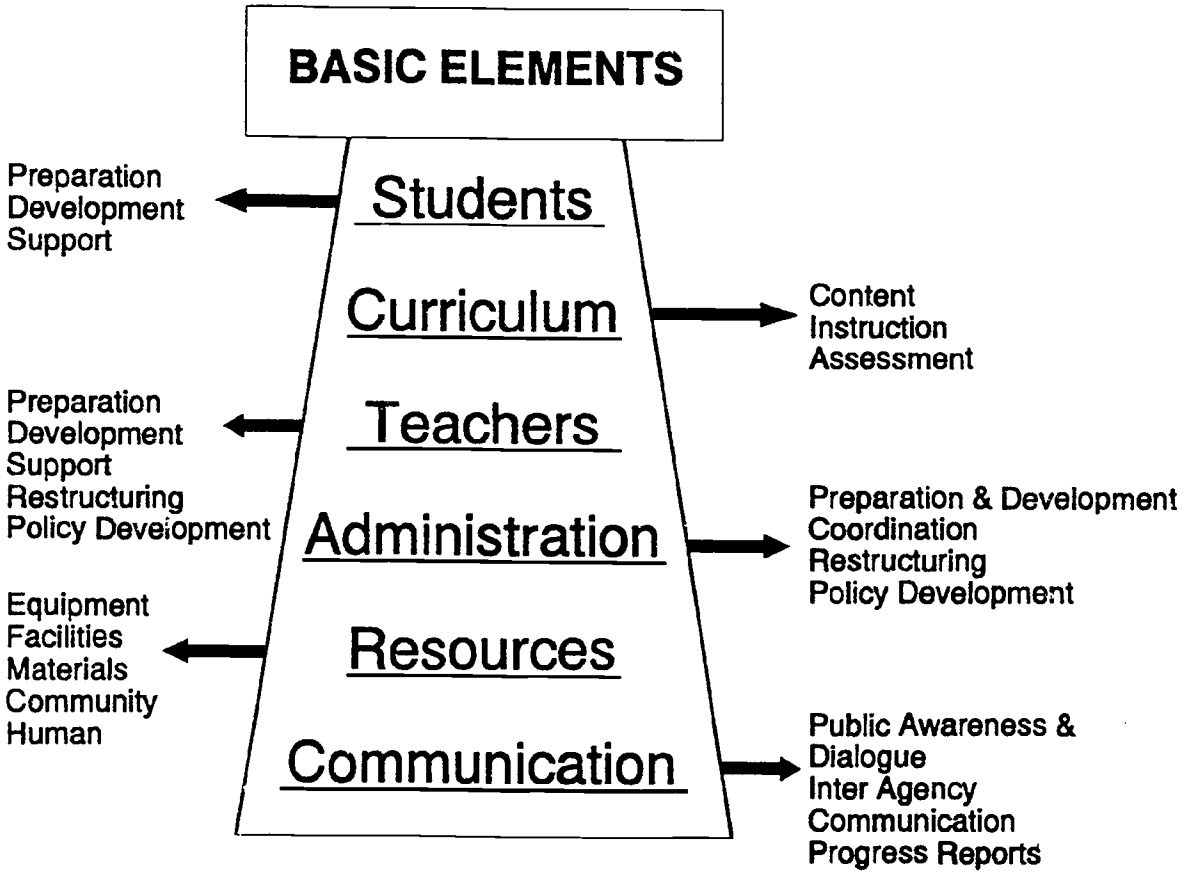
2. Serve as policy board for all major grants to improve mathematics and science education in South Carolina.
3. Continuously build state regional alliances, convene meetings, and forge partnerships for mathematics and science education reform.
4. Act as independent arbitrator of duplicative efforts, services, or proposals.
5. Identify measures of progress that accurately represent the most important needs identified by state plan.
6. Report progress on the Plan to the South Carolina Education Collaborative Council, the Governor, and the State of South Carolina.

SECTION II:
CRITERIA FOR EVALUATING AND REDESIGNING MATHEMATICS AND SCIENCE EDUCATION

The Governor's Mathematics and Sciences Advisory Board (MSAB) identified six key elements in its comprehensive State System for mathematics and science education:

Students
Curriculum
Teachers
Administration
Resources
Communication

Each of these elements has a specific subset of issues to be addressed.



This section defines each element in the State system and provides criteria for guiding the redesign of South Carolina's mathematics and science education system. As part of its original charge from the Governor, the MSAB proposes these criteria to the Governor, State Superintendent of Education, and Commissioner of Higher Education to assist them in considering proposals and other new initiatives in mathematics and science education.

The MSAB also intends that these same criteria guide resource allocation and policy decisions in the General Assembly, state agencies, colleges and universities, local communities and all others in the mathematics and science community in South Carolina. Finally, these criteria must apply to the South Carolina Mathematics and Science Education Plan itself.

A note about the structure of the statements: The State Plan takes a comprehensive view of the mathematics and science education system and its major elements. However, grant proposers, state and local agencies, and other organizations that represent the mathematics and science education communities each may take responsibility for particular subsets or elements of the system. Only the criteria of those particular subsets or elements that are relevant to a particular proposal or agency are expected to apply during any given review; hence, the use of the word *should* regarding all proposals.

STUDENTS

Regarding student **preparation**, the State Plan must and all proposals should demonstrate...

- a commitment to foster within students a sense of responsibility for their own education.
- a strategy to develop within students a sense of the value of education which encourages them to become active participants in the education process.
- a fundamental understanding that students are active learners, constructing their own knowledge and understanding of mathematics and science, rather than passive learners of "received" wisdom.
- attention to the issue of student motivation and what makes learning meaningful and of true value to students.
- a thorough assessment of student attitudes about learning and a relevant plan for responding to student concerns.
- a plan to incorporate an achievable challenge to students which inspires them to continually seek new levels of understanding.

Regarding student **development**, the State Plan must and all proposals should demonstrate...

- that student learning and assessment are consistent with agreed upon state curriculum goals.
- a thorough identification of overall student needs and concerns--intellectual, social, emotional, and physical.
- involvement of students and parents in plans to design and implement stimulating student programs.
- a mechanism to allow all students, regardless of their current ability, to achieve the next rung of accomplishment.

Regarding administrative **support** of student involvement in learning, the State Plan must and all proposals should demonstrate...

- ways in which administrators and teachers can foster, challenge, and support active student learning and achievement.
- a commitment to recognize and respond to the needs of historically underrepresented groups, such as women and minorities, and to stimulate their interest in science and mathematics.

CURRICULUM

Regarding **content**, the State Plan must and all proposals should demonstrate ...

- congruence with state and/or nationally accepted curriculum frameworks.
- connections between different areas of mathematics and science and the practical relationship to the world outside the classroom.
- connections between mathematics and science and real life applications.
- to the extent possible, a curriculum derived from the local or regional environment, taking advantage of the natural resources in the area.

Regarding **instruction**, the State Plan must and all proposals should demonstrate...

- instructional strategies that model practices shown to be effective by research and actual classroom use for both teachers and students.

- instructional strategies that encourage inquiry, discovery, creativity, problem solving, and critical thinking.

- instructional strategies that acknowledge and respond to variations in learning styles.

- instructional strategies that use hands-on activities.

Regarding **assessment**, the State Plan must and all proposals should demonstrate...

- a statement of purpose as the assessment applies to a particular context or activity.

- the appropriateness of assessment strategies to their purposes.

- congruence with state and nationally accepted practices of assessment.

TEACHERS

Regarding teacher **preparation** programs in colleges and universities, the State Plan must and all proposals should demonstrate...

- assurances that all faculty and instructors involved in the preservice education of teachers will model a variety of effective instructional strategies to their students.

- consistency with State and/or National standards and teacher education reforms.

- how the equal involvement of content area and education faculty and master teachers will be assured in the planning and development of preservice programs as well as specific proposals.

- ways in which preservice students will be included in a variety of settings with experienced teachers for extended periods of time.

- that all faculty teaching in preservice programs have appropriate K-12 field experiences.

- commitment on the part of community and institutional leadership to adequately support, promote, vigorously advance, and reward faculty who work with prospective and practicing teachers.

- involvement of schools, districts, and teacher preparation programs in the design of a transition process to facilitate entry into the profession for every new teacher.

Regarding teacher **professional development**, the State Plan must and all proposals should demonstrate ...

- coordination of professional development planning to provide every teacher, school and district a long-term improvement plan that is flexible enough for modification but is consistent with individual, local, statewide, and national goals.
- how professional development planning is based on continuous evaluation.
- involvement of teachers and administrators in the creation and implementation of professional development plans.
- use of teachers in establishing and enforcing standards of excellence.
- commitment of resources from all levels to implement the plans.
- ways in which teachers can be supported, promoted, rewarded, and advanced in their careers without necessarily taking them out of the classrooms.

Regarding administrative **support** of teaching and learning, the State Plan must and all proposals should demonstrate...

- ways in which administrators can support and reward innovation in teaching.
- how teaching and administrative responsibilities can be shared by every school professional.
- administrative policies and procedures that support mathematics and science education improvement.
- the development of standards and measures that enable administrators to identify those who are not only certified but qualified to teach in the content area at the specified grade level required.

ADMINISTRATION

Regarding the **preparation and professional development** of administrators, the State Plan must and all proposals should demonstrate...

- reinforcement, as needed, of educational backgrounds of existing administrators in the areas of mathematics and science to a standard basic competency level.

- instructional strategies that model practices congruent with research on effective administrator training.

- an experiential component that includes discovery, inquiry, creativity, problem solving, and critical thinking in the context of mathematics and science.

Regarding **coordination**, the State Plan must and all proposals should demonstrate...

- evidence of administrative support and commitment that recognizes the scope of the plan or proposal and its intended impact in the classroom.

- an educational component for administrators that enhances their ability to facilitate the vision and goals of the plan or proposal.

- how the program will continue after the funding cycle is over in terms of administrative support and state and local resources.

Regarding **restructuring**, the State Plan must and all proposals should demonstrate...

- how time, space, and other resources will be reorganized to meet teacher needs in providing the very best instructional experiences for students.

- how teachers are included in the planning and management of curriculum, instructional delivery, and school resource decisions.

- what responsibilities administrators have as instructional leaders and in the promotion and support of best practice in the classroom.

Regarding **policy development**, the State Plan must and all proposals should demonstrate...

- the involvement of both K-12 and the entire higher education community as partners in a systemic approach to mathematics and science education reform.

- clear goals for the system or proposers to meet.

- recognition of the importance of local level decision making and acknowledgement of the state's role as promoter and facilitator of local level change.

- appropriate accountability in the system.

- assurances that resources are adequate and appropriately distributed to meet the state mission and goals.

- the effectiveness of some selecting-out mechanism or other means to eliminate duplicative efforts within the system or across the state.

- the involvement of other important constituencies in the continuous improvement of mathematics and science education in South Carolina (e.g., business and industry, parents, community leaders).

- how the needs of present and future classroom teachers are being met.

- how the policy supports continuous improvement in mathematics and science education.

RESOURCES

Regarding **equipment, facilities, and materials**, the State Plan must and all proposals should demonstrate...

- how mathematics and science education resources necessary to support state of the art instruction will be identified, acquired, and delivered to every single school in South Carolina.

- how existing and new facilities can be made more conducive to state-of-the-art instruction.

- how newly introduced materials or equipment support meaningful professional development; conversely, when professional development requires using new materials or equipment, how those materials or equipment will be provided as part of the development experience.

- cost-sharing and time-sharing of more expensive or underused materials and equipment among neighboring schools or school districts.

Regarding **community resources**, the State Plan must and all proposals should demonstrate...

- a thorough identification of community resources based on identified student, teacher, or school needs.

- a thorough identification of public/private and business/education partnerships and their resources as applicable to the Plan and component activities.

- assurances of equitable access to community resources.

- a written commitment from the person responsible for these community resources.

- a mechanism for assessing the impact or effectiveness of these resources in the learning process.

- linkages with other state and local mathematics and science education improvement efforts.

Regarding **human resources**, the State Plan must and all proposals should demonstrate...

- a thorough identification of human resources based on identified student, teacher, or school needs.

- assurances of equitable access to human resources.

- a written commitment from the resource person.

- precisely how the human resource will be used (i.e., as a facilitator or coach, length of commitment, classroom follow-up).

COMMUNICATION

Regarding **public awareness and dialogue**, the State Plan must and all proposals should demonstrate...

- the appropriateness and usefulness of the message or information to the target audience.

- how a mechanism for feedback and exchange will be provided.

- a Statewide program of public communication/orientation to the focus of the strategic plan, its implementation and its progress.

- a system of legislative and governmental communication on the Plan and its progress.

Regarding **interagency communication**, the State Plan must and all proposals should demonstrate...

- agreements among agencies on the goals and strategies for mathematics and science education improvement.

- a mechanism for identifying and eliminating duplication of effort.

- a mechanism for continuously identifying areas of unmet needs.

Regarding **reporting progress**, the State Plan must and all proposals should demonstrate...

- objective comparisons of performance against appropriate standards at given points of time.
- objective measures of progress on appropriate indicators that meet the established goals of the Plan.
- a process for external review.
- how the information will be reported to external audiences in language that is understandable and formats that are useful.
- how progress reports, policy development, and public awareness and dialogue are all linked.

Appendix A: Proposed Mathematics and Sciences Resource and Professional Development Regions

- Counties: Beaufort, Colleton, Hampton, Jasper
  Participating School Districts: Beaufort, Colleton, Hampton 1, Hampton 2, and Jasper
  Participating Institutions: Low Country Technical College, USC-Beaufort, and the Low Country Consortium;

- Counties: Bamberg, Calhoun, Orangeburg
  Participating School Districts: Bamberg 1, Bamberg 2, Calhoun, Orangeburg 1, Orangeburg 2, Orangeburg 3, Orangeburg 4, Orangeburg 5, Orangeburg 6, Orangeburg 7, and Orangeburg 8
  Participating Institutions: South Carolina State University, Orangeburg-Calhoun Technical College, Claflin College, Southern Methodist College

- Counties: Clarendon, Darlington, Dillon, Florence, Lee, Marion, Marlboro, Sumter, Williamsburg
  Participating School Districts: Clarendon 1, Clarendon 2, Clarendon 3, Darlington, Dillon 1, Dillon 2, Dillon 3, Florence 1, Florence 2, Florence 3, Florence 4, Florence 5, Lee, Marion 1, Marion 2, Marion 3, Marion 4, Marlboro, Sumter 2, Sumter 17, and Williamsburg
  Participating Institutions: Pee Dee Education Center, Francis Marion University, USC-Sumter, Coker College, Florence-Darlington Technical College, Williamsburg Technical College, and the Governor's School of Science and Mathematics.

- Counties: Aiken, Allendale, Barnwell, Edgefield
  Participating School Districts: Aiken, Allendale, Barnwell 19, Barnwell 29, Barnwell 45, and Edgefield
  Participating Institutions: Salkahatchie Area Consortium, USC-Aiken, Aiken Technical College, Denmark Technical College, and Voorhees College.

- Counties: Georgetown, Horry
  Participating School Districts: Georgetown and Horry
  Participating Institutions: USC-Coastal Carolina and Horry-Georgetown Technical College.

- Counties: Abbeville, Greenwood, Laurens, McCormick, Newberry, Saluda
  Participating School Districts: Abbeville, Greenwood 50, Greenwood 51, Greenwood 52, Laurens 55, Laurens 56, McCormick, Newberry, and Saluda
  Participating Institutions: Lander University, Greenwood Area Consortium, Erskine College, Piedmont Technical College, Presbyterian College and Newberry College.

- Counties: Berkeley, Dorchester
  Participating School Districts: Berkeley, Dorchester 2, and Dorchester 4
  Participating Institutions: Trident Technical College, and Charleston Southern University.

- Counties: Chester, Chesterfield, Fairfield, Kershaw, Lancaster, York
  Participating School Districts: Chester, Chesterfield, Fairfield, Kershaw, Lancaster, York 1, York 2, York 3, and York 4
  Participating Institutions: Winthrop University, the Winthrop Old English Consortium, York Technical College, and USC-Lancaster.

- Counties: Charleston
  Participating School Districts: Charleston
  Participating Institutions: College of Charleston, Medical University of South Carolina, Trident Technical College, and The Citadel.

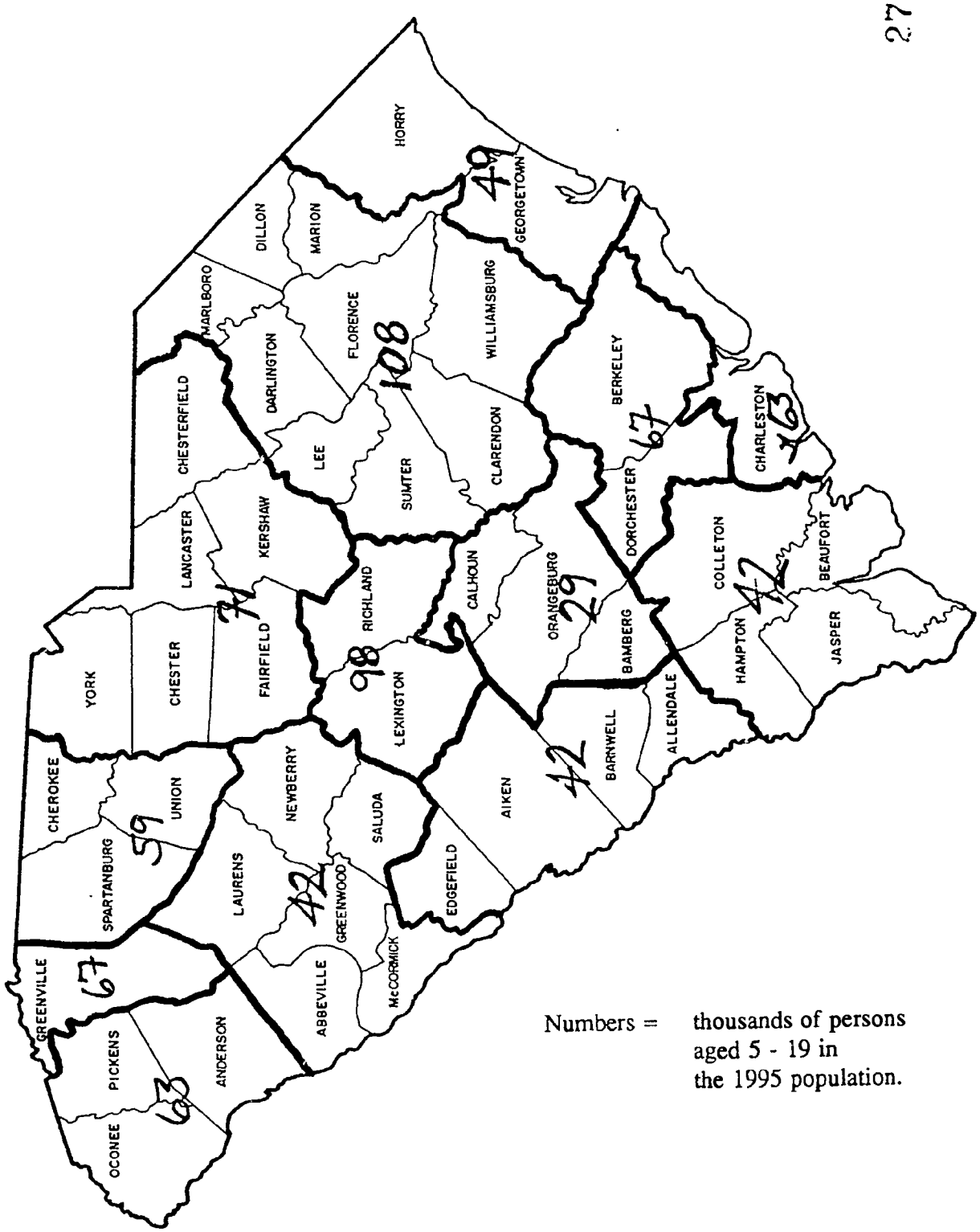
- Counties: Cherokee, Spartanburg, Union
  Participating School Districts: Cherokee, Spartanburg 1, Spartanburg 2, Spartanburg 3, Spartanburg 4, Spartanburg 5, Spartanburg 6, Spartanburg 7, and Union
  Participating Institutions: USC-Spartanburg, Converse College, Wofford College, Limestone College, Spartanburg Technical College, and USC-Union.

- Counties: Anderson, Oconee, Pickens
  Participating School Districts: Anderson 1, Anderson 2, Anderson 3, Anderson 4, Anderson 5, Oconee, and Pickens
  Participating Institutions: Clemson University, Tri-County Technical College, and Central Wesleyan College.

- Counties: Greenville
  Participating School Districts: Greenville
  Participating Institutions: Roper Mountain Science Center, Furman University, Greenville Technical College, and the Upstate Consortium.

- Counties: Lexington, Richland
  Participating School Districts: Lexington 1, Lexington 2, Lexington 3, Lexington 4, Lexington 5, Richland 1, and Richland 2
  Participating Institutions: USC-Columbia, Benedict College, Allen University, Midlands Technical College, and Columbia College.

Appendix B: Map of Proposed Region Boundaries



Numbers = thousands of persons aged 5 - 19 in the 1995 population.

map provided by the South Carolina Land Resources Commission

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